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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/628,240	07/29/2003	Kouji Yamaguchi	740709-507	4752

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EXAMINER

MCKINNON, TERRELL L

ART UNIT PAPER NUMBER

3743

DATE MAILED: 04/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/628,240	<b>Applicant(s)</b> YAMAGUCHI ET AL.
	<b>Examiner</b> Terrell L Mckinnon	<b>Art Unit</b> 3743

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 29 July 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 2, 5, 8-12, 15 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Ramshaw et al. (U.S. 6,059,024).

Ramshaw discloses a polymer film heat exchanger comprising all of the applicant's claimed and disclosed limitations.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 3 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ramshaw et al. (U.S. 6,059,024) in view of Takabayashi et al. (U.S. 5,262,227).

Ramshaw's invention discloses all of the claimed limitations from above except for the flexible thermoplastic polymer films are composite films comprising a heat-resistant aromatic polyimide sub-strate film and a thermoplastic aromatic polyimide

Art Unit: 3743

surface film fixed to the substrate film; and a flexible film having a heat radiant metal layer on one side fixed to the heat conductive film.

5. However, Takabayashi teaches the use of composite films comprising a heat-resistant aromatic polyimide sub-strate film and a thermoplastic aromatic polyimide surface film fixed to the substrate film; and a flexible film having a heat radiant metal layer on one side fixed to the heat conductive film (abstract).

Given the teachings of Takabayashi, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the polymer film heat exchanger of Ramshaw with the use of composite films comprising a heat-resistant aromatic polyimide sub-strate film and a thermoplastic aromatic polyimide surface face film fixed to the substrate film; and a flexible film having a heat radiant metal layer on one side fixed to the heat conductive film.

Doing so would improve the heat transferring characteristics of the heat exchanger.

6. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ramshaw et al. (U.S. 6,059,024) in view of Takabayashi et al. (U.S. 5,262,227) as applied to claims above, and further in view of Yamada et al. (U.S. 4,449,992).

Ramshaw's invention, as modified by Takabayashi, discloses all of the claimed limitations from above except for the flexible thermoplastic polymer films are flexible thermoplastic polyethylene terephthalate films.

7. However, Yamada teaches a polymer heat exchanger comprising the use of thermoplastic polyethylene terephthalate films (column 5, lines 32-45).

Given the teachings of Yamada, it would have been obvious to one of ordinary skill in the art at the time of the invention to further modify the thermoplastic heat exchanger of Ramshaw with a thermoplastic polyethylene terephthalate films.

Doing so would provide an alternate material for efficiently conducting heat transfer.

8. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ramshaw et al. (U.S. 6,059,024) in view of Takabayashi et al. (U.S. 5,262,227) as applied to claims above, and further in view of Yao et al. (U.S. 2003/0129379).

Ramshaw's invention, as modified by Takabayashi, discloses all of the claimed limitations from above except for a heat resistant porous film on a surface having no heat conductive film thereon.

9. However, Yao teaches the use of a heat resistant porous film.

Given the teachings of Yao, it would have been obvious to one of ordinary skill in the art at the time of the invention to furthermore modify the thermoplastic heat exchanger of Ramshaw with a heat resistant porous film on a surface having no heat conductive film thereon.

Doing so would provide a further alternate material for efficiently conducting heat transfer.

10 Claims 13, 14 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ramshaw et al. (U.S. 6,059,024) in view of Takabayashi et al. (U.S. 5,262,227) as applied to claims above, and further in view of Philpott et al. (U.S. 2003/0213580).

Ramshaw's invention, as modified by Takabayashi, discloses all of the claimed

Art Unit: 3743

limitations from above except for placing one flexible thermoplastic polymer film on another flexible thermoplastic polymer film via a copper foil, intervening flexible thermoplastic polymer, or a thermal head in a reverse pattern of a conduit pattern, fusing both polymer films to combine both polymer films together in part, and etching out the copper foil to form the conduit pattern between the polymer films.

11. However, Philpott teaches a method of making a flexible polymer film heat exchanger comprising one flexible thermoplastic polymer film on another flexible thermoplastic polymer film via a intervening flexible thermoplastic polymer, or a thermal head in a reverse pattern of a conduit pattern, fusing both polymer films to combine both polymer films together in part, and etching out the copper foil to form the conduit pattern between the polymer films.

Given the teachings of Philpott, it would have been obvious to one of ordinary skill in the art at the time of the invention to furthermore modify the thermoplastic heat exchanger of Ramshaw with placing one flexible thermoplastic polymer film on another flexible thermoplastic polymer film via a copper foil, intervening flexible thermoplastic polymer, or a thermal head in a reverse pattern of a conduit pattern, fusing both polymer films to combine both polymer films together in part, and etching out the copper foil to form the conduit pattern between the polymer films.

Doing so would provide a safe and reliable method of manufacturing a thermoplastic heat exchanger.


### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following references are cited for disclosing related limitations of the applicant's claimed and disclosed invention. Cassidy et al, Ford et al, Hulbert et al, Belady et al and Friedman et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Terrell L Mckinnon whose telephone number is 703-305-0059. The examiner can normally be reached on Monday -Thursday and every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Henry Bennett can be reached on 308-0101. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Terrell L Mckinnon  
Primary Examiner  
Art Unit 3743

April 19, 2004